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NEWS

We welcome your ideas regarding news and feature topics for Canadian Computer Wholesaler. Feel free to contact the editors directly with your suggestions.

TEST LABS

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Wether we're talking about the home or business market these days, buyers are really eating up color printers. In some cases, literally.

In fact, among the rather impressive claims that surprised Tektronix's solid-ink color printer (a competitor to many laser printers on the market), this is rather delectable: that the ink sticks are edible.

But, as Harvey Shaffer, Tektronix Canada Inc.'s national sales manager was quick to point out regarding the edible ink sticks: "I can tell you, it doesn't taste all that good."

Oh, really, Mr. Shaffer?

The point, according to the company, is all about being environmentally friendly — as opposed to making a fomp into the stock market. Indeed, Tektronix is certainly upped that the sticks are food-tasting and definitely not nutritious.

Still, imagine the possibilities!

Upon noting my pointed interest in Tektronix's edible ink, Ruth McRae, general manager of Tektronix Canada Inc., interposed: "The last thing we want is to have people eating our ink!"

Tektronix's real theme has to do with pushing the penetration of color in corporate printing, both via solid-ink printers like the Phaser 840 and color laser printers like the Phaser 750. Indeed, International Data Corp. says revenues from desktop-color-laser printers will share a compound annual growth rate of 26 per cent between 1998 and 2002 (Corporate annual growth for ant shopments in the category is predicted at 45 per cent over that same time period).

Of note, last month Tektronix announced it's moving from an authorized pre-approval model to a post-sales registration model, to deliver "open sourcing" to the channel. For more on the printing market, please check out this issue's special feature "Printer '99," (page 12), by *CCW*'s Associate Editor Jeff Evans.

Epson Canada Inc. was among the vendors exhibiting at the recent Comdex/Comdex West show in Vancouver. Product marketing coordinator Tim Latta, demon-



Consuming Consumables?

"The last thing
we want is to
have people
eating our ink!"

— *Editorial Columnist*
Ruth McRae

sited a number of new offerings, including the \$799 Epson Color 900 ink-jet printer, which the company says prints 12 black pages/minute or 10 in color — at 20 per cent page coverage.

But what about the printer's ink?

When asked about the ability of his company's consumables, Latta explained Epson's ink-jet printers (with the exception of some very high-end models) use dye rather than pigment to color its ink, in the name of ink stability. "I could probably lick that cartridge and I wouldn't die," he quickly added. "But I won't!"

Good call, Mr. Latta.

Of note, Epson recently introduced its \$999 PhotoPC 750Z megapixel camera, to deliver eight-megapixels to 10-inch photos at resolutions of 1,600 by 1,280. (Along with all sorts of nifty features like using solar energy to save battery life, PowerPoint presentations can be downloaded from the PC to the camera — the camera can be hooked to a multimedia projector or a TV, for presentations!) The camera can also be directly hooked up to a number of Epson Stylus color ink-jets, for printing without a PC.

The Lexmark 5770 Photo Jumper, priced at \$600, takes the concept one step further. Using built-in slots, it can print photos from any camera using CompactFlash or SmartMedia memory, without involving a computer.

Expect substantial growth in quality color printers and the accompanying lucrative opportunities as the market for digital cameras expands. Meanwhile, as the price premium for corporate color continues to drop, you'll see more buyers devour color and color-capable printers as alternatives to monochrome lasers.

Here's something worth pointing out: To further its promotion of color printing, Tektronix continues to offer free black ink to customers of its solid-ink-based color printers.

All you can eat? ■

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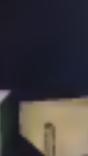
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INDUSTRY FLASH



Year 2000 Bugs Bankers

(N.Y.) — Swiss bankers have announced that the Swiss banking transfer network will effectively be closed for four days over the New Year's break, owing to worries about how bank transfers will operate.

The Swiss Bankers Association (SBA) has warned members to be extremely wary of initiating transfers that operate during the period Dec. 31, 1999, to Jan. 3, 2000, owing to the risk of problems at any stage in the transfer.

The SBA said it had issued the recommendations after consultations with a number of parties, including the Federal Banking Commission, the Swiss central bank and the Swiss Stock Exchange. Transfers over the first day period which originate in, pass through, or terminate in Switzerland are impacted by the advisory officials said.



SAP in Biggest in Smaller Business

SAP Canada Inc. says its Small and Medium Enterprise business unit (partner organizations with revenues of less than \$25 million) has exceeded revenue expectations of \$16 million for 1998. In fact, the unit will achieve more than \$22 million in sales according to Lee Vanapall, director for SAP Canada's small and medium enterprise unit. He said those results will double next year.

Sales through SAP Canada's Certified Business Solutions (CBS) account for more than 90 per cent of new SAP Canada customer signings.

Key to the focus on smaller businesses is SAP's Accelerated SAP methodology. CBS customers experience an average implementation of 30 weeks, SAP claims.

SAP's CBS units are handled by three Canadian resellers: ProTech Services Ltd. of Guelph, Optimum Software Solutions of Toronto, and Principex Inc. of Montreal.

SI Group, Autostar went public on the Alberta Stock Exchange last October. Then in December, the company acquired Canadian Consulting Associates Ltd., also of Calgary. The combined company is expected to have 30 SAP clients and \$10 million in revenue.

CORRECTION Supercom's Dodge bug fix!

Supercom's new Mississauga, Ont., headquarters are a healthy 35,000 square feet. We left off a zero in our recent coverage of that facility's opening and the distributor's 10th anniversary celebrations (CDW January, page 8). Our apologies! (gr)

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"I love you, man."

— Sun Microsystems CEO Scott McNealy, in Oracle CEO Larry Ellison, during a Dec. 16 press conference.

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Redefining Low-End Computing



By
David Tonello

While most companies would consider an 80 per cent market share the pinnacle of success, it's just not good enough for Intel Corp., at least according to one recent news report. It seems that the company's hold on CPUs for PCs has fallen slightly below that lofty height and it's the law that's to blame.

In its "November Retail Hardware Report," Rossen Vu-based PC Data reports that 868-US\$1,000 PCs made up 58.5 per cent of the U.S. market in November. A year earlier they accounted for 33.8 per cent.

Meanwhile, unit sales of over-US\$1,500 PCs accounted for only 10 per cent of November '98 sales, a decline of 52 percent from November '97.

When you look at the CPUs powering these low-end machines, you might see the source of Intel's concern. According to PC Data, "AMD's K6-2 processor was the leading processor choice for sub-US\$1,000 PCs for the fourth consecutive month, with 35.3 per cent share in November. PCs based on the National Semiconductor (Cyrus) Mill processor accounted for 30 per cent of sales, and

Celeron-based PCs had approximately 22 per cent."

It should be pointed out that these figures reflect the U.S. market, which is in some ways quite different than the Canadian scene. For example, a large part of AMD's pentium share is tied to the success of Packard Bell/NEC in the U.S. market. PC Data says that Packard Bell/NEC is in the Number Two spot in retail sales in the U.S., right behind Compaq.

However, specific brand names aside, if one looks at the computer advertisements in this country, AMD- and Cyrus-powered systems are becoming a common offering, right along side the Celeron-driven machines.

When low-cost chip makers were not the high market opportunity they are today, Intel served that need by "tricking down" slower processors as faster ones were introduced, but that wasn't its only strategy. The 486SX, for example, was essentially a 486DX without a coprocessor, which could be produced more economically. As originally conceived, the Celeron was essentially a fifth-generation Pentium II chip without Level-2 cache, which was also less costly to produce.

And like the 486SX, the early Celerons suffered performance deficiencies in some areas. It was simply demonstrated, for example, that on some benchmark tests, a 233MHz Celeron would not perform much better than a fifth-generation Pentium. Intel soon added 128KB of Level-2 cache to Celerons because competent performers. In early January, Intel introduced two new products to the Celeron family processors working at 306MHz and 400MHz. Intel says they offer 80 percent and 29 per cent more performance, respectively, over the 333MHz version.

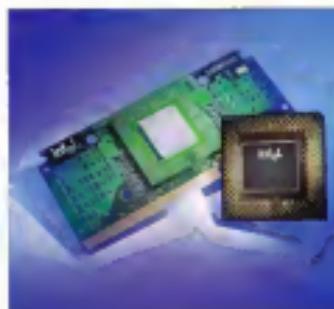
Intel says the 400MHz Celeron will cost US\$158 in Plastic Pin Grid Array (PPGA) packaging, or US\$166 in Single Edge Processor Package (SEPP) in quantities of 1,000 or greater. When the company introduced the Celeron last August it set the price at US\$192. Meanwhile, the 450MHz Pentium II, also introduced in

August, earned a pricing tag of US\$369.

In November, AMD introduced a 400MHz version of its AMD K6-2 3D processor, along with 333MHz and 350MHz versions. This line includes a 3D acceleration set the company is calling "3DNow! And AMD says Microsoft's DirectX 6.0 API (Application Programming Interface) is optimized for 3DNow! which allows software developers using DirectX to enhance the 3D performance of their applications. When announced, the 400MHz K6-2 was priced at US\$283 in 1,000-unit quantities.

In terms of what those chips cost in the real world, at the beginning of the year, a 333MHz Celeron chip was selling at retail in Canada for about \$200, a 333MHz AMD K6-2 3D core \$180, while a 350MHz Pentium II core sheet \$400. (A 450MHz Pentium II was around \$800.) This creates an interesting situation for PC makers. As the performance of the so-called budget chips — the Celeron and AMD K6-2 — improves, they become viable alternatives to the slower Pentium IIs.

This isn't just true for budget systems destined for the home. For example, Compaq Canada Inc. announced in early January that its Desktop EX and IP commercial desktop systems would be offered with 400MHz Celeron processors. (Compaq also offers the Presario 5150, which uses the AMD-K6-2 3D processor.) What this means for consumers is increased choice — or increased confusion depending on your point of view. For example, some computer store ads have listed Pentium II and Celeron systems with comparable features priced within \$100 of each other.¹³



David Tonello is a regular CCW columnist. Based in Toronto, he is Editor of *The Computer Paper*, and can be reached at david_tonello@sympatico.ca.

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System Integrators: Are You Ready for Pentium III?

by Graeme Bennett



When your customers ask whether the motherboard they buy today will be compatible with the Pentium III, do you know the answer?

Abs! thinks it does. The motherboard manufacturer has already posted a Pentium III-compatible BIOS update for its popular P3B-480BX motherboard at <http://www.abs.com>. Abs! quickly followed, with a freely downloadable Pentium III-compatible BIOS upgrade for its popular 840BX motherboard. Other board manufacturers, too, are expected to provide BIOS updates that will, *Newegg* reports, allow virtually any BX-class board to be used with the Pentium III.

As well, many believe that because Abs!'s popular BX board allows custom voltage settings as well as a PCI clock divisor of 4:1 it will allow the PCI and AGP subsystems to work correctly with the maxed-out 133MHz bus on a future version of the Pentium III, code-named Coppermine. Intel is expected to use an improved manufacturing process to fabricate Coppermine chips with a 18-micron die size, yielding chips capable of running at speeds of 600MHz or more.

The Pentium III (formerly code-named Klamath) will be officially released on Feb. 28.

The chip will be initially available at 450MHz and 500MHz speeds, and will include improved multimedia capabilities — enhancing both 2D video and 3D graphics. But according to early tests, it will provide only nominal improvements in everyday apps. The new instructions it succeeds at are some of Intel's current "MMX" instruction set, an acronym often referred to as KNI (Pentium III new instructions); however, their official name is Streaming SIMD Extensions (SSE). They are perhaps best thought of as Intel's answer to the 3Dnow! instructions in Advanced Micro Devices' K6-2.

AMD's not standing still either. Its next-generation K7 chip is expected to ship on June 23.

Of course, there's always an element of uncertainty when predicting compatibility with unreleased products. Late-major changes (such as the Pentium III's rumored frequency lockout could spell an end to overclocking), may affect compatibility with current designs.

Will your motherboard be able to support UDMA/66? With the forthcoming enhancement to the Ultra DMA (direct memory access) hard drive specification known as UDMA/66, inexpensive EIDE mass storage devices are poised to provide performance comparable to much more expensive Ultra Wide SCSI 2 drives. Abs! says its upcoming products, code-named Canino and Whitney, are the only chipsets slated to support UDMA/66. However, this news does suggest that a new round of motherboard upgrades (or add-on UDMA/66 controller cards) will be likely when the 133MHz bus versions of Pentium III and UDMA/66 devices become available later this year.

Although the 350MHz and 400MHz models include 128KB of Level-2 cache like the 300A and 333MHz chips, the new CPUs are available also in a square pin package that the company calls Socket 370. A strong resemblance to the old Pentium design is only superficial, as Socket 370 processors cannot be used in older Socket 7 motherboards, the way competing chips from AMD and Cyrix can.

However, some manufacturers, including MSI and Abit, have announced converter cards that can adapt a Pentium II Slot 1 motherboard to accept the Socket 370 processor.

The new Socket 370 chips are less expensive than their Slot 1 cousins. As well, the smaller size of the new format makes it possible to shrink the size of tomorrow's PCs, possibly leading to other savings.

In fact, some retailers are expecting Celeron sales to pick up over the next few months as new system buyers eschew the higher-priced Pentium II in favor of a low-cost Slot 1 (or a Slot 1 board with an adapter for a Socket 370 chip) solution. That will allow them to later drag in a 500MHz or better Pentium III as price falls.

Sources close to Intel say the company is planning to put special priority on its forthcoming chips to completely eliminate or greatly reduce the potential for overclocking. However, the end of the line for overclockers hasn't yet come.

In fact, the Socket 370 version Celerons seem to be at least as overclocking-friendly as most Slot 1 models, which die-level computer users have found can, with the right motherboards and cooling easily be pushed beyond their stated limits.

Blaster planned for the first half of 1999, is a 32-bit workstation-class CPU and will be followed by chips code-named Coppermine and Cascades for desktop and server applications. By mid-2000, Intel expects to be shipping its first 64-bit processor — a chip it calls Meyden. Intel also provided some details on the Willamette (also 32-bit) and Foster (32-bit again) chips it expects to succeed the Pentium III and Xeon families at speeds up to 1GHz by 2004 and beyond.

Intel is already working on chips more advanced than Merced. Next in line will be a processor code-named McKinley. This chip will, Intel says, achieve twice the performance of Merced and is expected to run at speeds starting around 1GHz (1,000MHz).

And a CPU called Madison, due around 2002, will be aimed at high-end workstation and server applications. Following it will be an IA-64 CPU (currently code-named Itanium), which will be a "processor performance processor."

National Semiconductor, which now owns Cyrix, isn't standing still either; but it doesn't have the market momentum of its primary competitor. The company is putting its hopes on a chip it calls M3, expected to debut in the 600MHz to 800MHz range, along with a chip code-named Jalapeno, expected to start in the 400MHz range in the fourth quarter. ■

FOR FURTHER READING

- Motherboard and CPU reviews — <http://www.ccp.ca/~bennett/motherboards>
- AMD K7 — <http://www.cyberlink.com/cyberlink/processors/amdk7/>

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Printers '99:

*The Market Focuses
on Networking,
Internet Printing,
Color and Supplies*

by Jeff Evans



For from enabling a "paperless office," personal computers and laser, inkjet and impact printers have caused a quantum leap in the amount of printed materials produced in the computerized world.

For now, the instant gratification element of printing technology offers great business opportunities in hardware sales, col-

worked printer solutions, maintenance and especially in printing supplies. For the last two years, the sales of printing supplies such as ink and toner cartridges, plus paper, has surpassed the value of printer hardware sold in Canada.

With the Web look becoming the network users' and managers' interface of

choice, network printers increasingly are displayed as assets on the user's Web browser screen for the purpose of either printing a document or managing the print system. So companies such as Hewlett-Packard, Lexmark and Xerox, which for years have offered proprietary printer management software, are now faced with the universal Web format and are working to adopt industry wide standards for printer management. When completed, this will mean much better and more usable printing solutions. In the meantime, many vendors are including a complete Web site on the built-on hard drive of some network printer models, so that users can simply call up the URL of a printer from anywhere in the world and exchange and print documents.

The Color of Money

Now that even near-photographic quality hard-copy has come down to commodity-prices levels, color is increasingly a viable option. Over the last four years, color laser printers have declined in price from the \$20,000 range to less than \$4,000, while increased reliability and lower supply costs have reduced operating costs to a fraction of their former levels.

Common Printer Innovations in 1999:

- Up to 10 times faster processing** — either via a RISC chip in the printer itself, or at the base of the cheapest personal printers; by taking advantage of much faster PC CPUs. Network printers with speeds in the 24- to 40 ppm range are now the norm.

- Higher resolution, whether real or imagined** — where most printers were limited to 300-dpi resolution a few years ago, 600 dpi is now the entry level, and many printers boast 720-, 1,200- or 1,440-dpi resolution. But understand the dubious nature of some resolution claims. For example, "1,200-dpi color" resolution often means 600 dpi true resolution, artificially enhanced by image smoothing tools to approximate 1,200-dpi quality. Hewlett-Packard, in particular, strong by the choice of computers such as Epson and Lexmark's 1,440 or 1,200 dpi resolution, protests that the proprietary HP print head, ink, and software technology results in higher "real" dots and image quality than the higher resolution competition.

- Photo-quality color** — in practice, true photo quality is difficult to achieve, often demanding special ink and paper combinations, and a degree of control between tuning the professional graphics art, as well as separate marketing and communications, users will demand and pay for true photo resolution capability.

- Networking** — There are considerable potential advantages to buying a networked printer as a package, with a pre-installed network interface card (NIC). There is likely to be a period of some significant discounting, complexity, and compatibility problems until true Internet printing standards are universally adopted and built into operating systems software, plus server and printer hardware. In the meantime, 10Mbps ethernet is increasingly the norm.

Color printers have higher ticket prices and generally higher maintenance overheads, while color toner and ink costs several times as much per output page as black and white. Color toner/ink often benefits from special high-quality high-priced paper, and color graphics demand higher-end computers, graphics cards, monitors and mass storage.

The Battle of the Brands

With the major profit opportunity coming from sales of ink and toner cartridges, the major printer vendors have a vested interest in encouraging end-users to buy only name-branded replacement cartridges. Some companies, such as Xerox, have responded by carefully engineering toner cartridges to be almost impossible to recycle for additional use. Many corporate end-users are happy to be captives of their printer manufacturers—the potential for damage to printers, or bad-quality output makes anything but name

brand supplies more risk than they are worth. However, for many users at the mid-to-low-end of the market, off-brand supplies, at discounts of 40 to 50 per cent are an irresistible bargain.

Refiller companies such as Toronto's Image Control Ltd. can realistically offer good quality at a very attractive price—particularly in product categories such as black ink or toner.

Buyer Beware

End-users of printer supplies in the Canadian market face a hazard in the form of unscrupulous telemarketing scammers who phone companies pretending to be the regular vendor of printer supplies, and fast-tell the unwary purchaser not buying supplies at greatly inflated prices. For legitimate resellers, part of developing a beneficial long-term relationship with customers involves staying actively in touch with clients and pre-

venting abuse on such issues.

For the home PC user, a personal letter-size color ink-jet printer will do a little of everything—handling graphics and text, color and monochrome, at reasonable speed and quality. This is the reason that the color ink-jet, from vendors such as Canon, HP, Epson and Lexmark, has become the vastly preferred printer in the home market. However, a \$300 ink-jet can't handle a high-volume duty cycle from either a speed or density standpoint, isn't particularly well suited to use on a network, can't handle over-size pages and often costs much more in supplies and maintenance than the original purchase price. For most businesses, a networked monochrome laser is the standard and preferable solution. Depending on budget and needs, the reseller has to calculate the best solution in terms of speed, paper capacity and size, networkability and security. There is still a durable market for impact

Some Players:

Brother (<http://www.brother.com/C-products/printers.html>) has traditionally focused on high value, easy-to-use printing products for the home and small office. Products include a new line of fax, inexpensive lasers such as the HL-1040M 10 ppm personal laser, and the HL-2000 27 ppm network laser printer. Brother is the leader in the North American multifunction market, leveraging its experience with both fax and printer technology to bring cost effective, well designed hybrid products to market, including the ImageFAX 625. Finally, Brother has had a very durable success story with its P-Touch labeling system devices, including the new PT-820 model.

Canon (<http://www.canon.ca>) is the volume leader in the inkjet print market in Canada. The company also is a major supplier of monochrome lasers (such as the LBP-2800 31 ppm 1000 by 1200 dpi wide-format printer), color laser printers (such as the CL-S200 4800 PX, 4800 dpi, 4 ppm color/10 ppm mono) photocopiers, and multifunction devices (including the MultiPASS C3000 4000-dpi wide-format and MultiPASS C3000-MFP color models). Canon's LaserJet ink-jets include the BJ-C 300 Photo printer—a 1.28-litre 600 dpi printer with impressive features such as water resistant ink, and full edge-to-edge bleed printing, plus a graphics software suite. Canon also offers a CL-1000 (radius size 0.1 by 11 inches) color printer; the GL-C 400 and BJ-C 400 desktop printers, and the portable BJ-C 10 and color BJ-C 40 models.

Compaq (<http://www.compaq.com>) announced a range of consumer-oriented ink jet printers in its product rollout in June and September. These are OEM'd Lexmark printers. When Compaq acquired Digital Equipment Corp (http://www.digital.com/printers/productprint_products.html), it also picked up Digital's extensive printer line. Current products (some of which are available only in Europe) include laser printers, such as the new L400 color laser printer; dot matrix printers; line matrix printers; and a range of print networking products and print server and management products for VMS, Unix and Windows networks.

Epson (<http://www.epson.com>) has rebounded with its line of Epson Stylus inkjet printers. Currently, Epson's printer product line includes more than a dozen Stylus ink jet models, such as the letter-size Epson Stylus Color 840, 880, 900 and 940 models and the nickel-plus-sized Epson Stylus Color 3000, Stylus Color 1000 and Stylus Photo EX models. Epson also has a strong presence in the dot matrix/impact printer market with 11 models, including the FX-2100.

Fujitsu (<http://www.fujitsu.ca/printers/printers.html>) carries a line of four PrintPartner business monochrome printers, ranging from the entry-level PrintPartner 10V (in Computer Paper Editor's Choice winner)—a 10 ppm printer with a 48MHz RISC processor and optional PostScript and network connectivity upgraded, to the Print Partner 10 AV— a 17 ppm printer with a 125MHz RISC processor and both PostScript Level 2 and Ethernet 10Base-T network interfaces. Fujitsu also carries three dot-matrix printers: the B-L3700 Pro, B-L3800 Pro, and the B-L3800 Pro and B-L3800 Pro.

Hewlett-Packard (<http://www.hp.com>) is the traditional leader in the business laser and networked laser products, and has ink-jet leadership. The company's dominance has been frequently challenged by competitors such as Epson, Canon and Lexmark, but HP is constantly leapfrogging others with improvements in network printer management, ink jet printing technology, ink formulation, graphics and print driver software. It also delivered entirely new product categories such as its digital capture and send (DCS) technology (including the Exchange 110 Information Appliance), and the HP 8000 Digital Binder.

HP has nine multifunction devices (including the new HP LaserJet 1100A and 3100, the HP OfficeJet Series 700 and the color-separating HP PhotoSmart Series 1000Q). There are 10-page format HP preset models, ranging in paper width from 24 to 84 inches. HP has at least 36 models of network printers currently available—including six models of color LaserJet laser printers, 11 models of networked color or monochrome inkjet printers, 13 series document laser printer models, and two network "inquiries." For instance, there are 10 personal/inkjet printer models, and nine personal lasers. As well, HP has five models of line impact printer available, ranging in speed from 500 lines per minute to 1,000 lines per minute.

Lexmark (<http://www.lexmark.com>) uses its own fundamental print engine and printing technologies—a definite advantage of them as technologies are better than the competition's versions. Lexmark has just released an innovative photo center—the Photo JetPrinter 1770, a 1,200 dpi 24-bit true photo quality ink jet printer, which allows the user to print directly from a digital camera's CompactFlash or SilverMedia memory card. As well, Lexmark announced support for a picture printing option that allows the Photo JetPrinter to print images directly from a parallel port device. This device is attached to the parallel port of the printer. Added to a very comprehensive line of networked laser printers, color lasers and personal and workgroup



OBJET 2500

inkjet printers, the Photo Jetcenter 5770 is a convincing example of how Lexmark plays in the frontier field through careful attention to both user needs and the possibilities contained in rapidly changing technology.

NEC Technologies (<http://www.nectech.com/printers/index.html>) currently offers ten printers, including six monochrome lasers (SuperScript 880 Plus, 870, 1280, 1290, 1790, 1795), three ink-jets (SuperScript 780C, 188C, and 189C), and two SuperScript Color Lasers (4800 and 4880). NEC's printer team tend to be excellent value, well-designed products. Its new laser printer is particularly impressive, designed from the ground up to be a leader in Internet-based printing, color imaging, high speed and lower cost of ownership.

Okidata (<http://www.okidata.com>), well known for its rugged, inexpensive LED printers, has been a somewhat overshadowed by larger players in recent years, and has staged a comeback campaign, with new products and multi-function products aimed at moving the company up into the networked business printer market. Current products include eight models of one-gpm impact printers, six models of 36-gpm impact printers, 18 models of Okidata monochrome printers, including the 30-gpm 600 dpi Okidata 2000; and the Okidata 4 multifunction device, a 900-dpi class, four-page-capacity personal LED printer (<http://www.okidata.ca/okidata/lex>).

Tektronix (http://www.tek.com/color_Printers) is very well known and respected in the professional graphic arts, technical and corporate markets — due to its printer durability, reliability and low cost of ownership. Tektronix rolled out a major new wave of printer models last fall, which have been well received in initial tests. By concentrating on the professional market, Tektronix has developed a no-compromises policy of quality engineering. The company bases its printers on four completely different technologies: print by the line uses Tektronix unique solid-ink media, while the rest uses more industry standard monochrome or color laser technology. There are currently 13 models of Tektronix Phaser printers, all of which are color or color capable networked or networkable devices. Some Phaser models are oriented towards the business market, and some towards the design and publishing market. The top-of-the-line Phaser 380 is solid-ink, 1,200 dpi color laser, is aimed at the high-end graphic arts professional, and features capta-

tion, which are the best tools for printing multi-page forms. There is also a rapidly increasing market for networked color printers, whether that means color laser printers or copiers, high-capacity ink-jets, or Tektronix's solid wax printers.

Perhaps the most rapidly growing category of printers is the multi-function device (MFD), which is by definition, not just a printer. MFDs typically include scanning, copying and fusing features, as well as simple printing. Increasingly, networking options and high-speed monochrome laser models are offered to the enterprise market, and color ink-jet models are increasingly popular. A large installed base of color MFDs may make color faxing a common feature of the printer market in the future.

Where are the Margins?

Printer hardware, particularly in the retail and small business segments of the market, is often a loss-leader. In addition to the profits in selling supplies, a major business opportunity for technically proficient resellers is in upselling professional computer users to additional service contracts, or printer models that have extended or enhanced warranty coverage. Most printer vendors explicitly recognize the great divide between the price-on-street retail customer and the mission-oriented professional client. By establishing a relationship of trust and value for money, resellers can ride the new wave of printing to a profitable 1999. ■

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tioned color matching and calibration functions, with print sizes of up to 13 by 18 inches (330mm by 457mm). The Phaser 2400 is designed as a color replace printer, since all it needs to turn it from a monochrome to color model is the addition of a pack of color toner cartridges. Tektronix makes a strong business case for color as a central feature of all business printers.

Rexxa (<http://www.rexxa.com/printers/>) has a full range of printer products, ranging in price from a few hundred dollars for a personal laser or inkjet to hundreds of thousands of dollars for high-volume document systems. The product line is grouped into categories that include desktop (D models of printers and multifunction devices), workgroup (W models of printers and printing systems), high-volume pre-production systems (H models), color (C models), ranging from personal ink-jet to the DocuColor V8 Digital Color Press, large-format (the Colorgraph GS graphic arts and Rexxa Engineering Printer) and microfinishing products (the color superprinter model), and WorkCentre monochrome copier/printers models and iQ Document Center model. Rexxa was the first to offer a 40-gpm workgroup printer. The company goes head-to-head with Lexmark, HP and other networked printer vendors, in some high-end areas, it seems to have very little direct competition.

They Also Print.

A wide variety of specialized players fulfill hard copy needs in niche markets, or though they may have a low profile in Canada, nevertheless have some impressive products. *Beamer* (<http://www.beamer.ca/>) has 23 different models of photo and video printers, including the UP95500 ID card printer, UP950 video graphic printer, and UP950MD Medical graphic printer, while *Polaroid* (<http://www.polaroid.com/photodrivers/>) has a line of slide printers including the DeskLab II Slide Printer, and the ColorSlide Digital Photo Printer which prints photo-quality prints from a PC as fast as 15 seconds. *Gyrox* (<http://www.gyrox.com>) has a line of networked printers including the 70-gpm P8 2000, and offers innovative printer management software. *PermaVu* (<http://www.permavu.com>), a part of the giant Matsushita conglomerate, has a wide range of laser printers (KX-P180, KX-P185, KX-P186), multifunctions (KX-P180, PGI-FAT), Sharp AR2000 eight models of dot-matrix printers, and four models of Matrix color laser printers, including the KX-P182. *Epson* (<http://www.epson.ca/>) has a line monochrome printer, which is used to print out pictures created on the GameBoy handheld entertainment device, with the aid of the Nintendo video camera peripheral and software.

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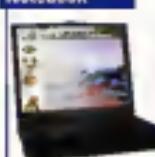
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**Dealers
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The Promise of LED:

Affordable Color and High Performance?

Advances in color page printing are on the verge of shaking up the networked business market, foretelling eventual fallout into the mass market.

"Color page printing" is used for want of a more sexy term — you'll see why in a moment.

Popular ink-jet printers, like dot-matrix models, print a line at a time — you can watch the page being produced, strip by strip. This means they don't need high-end microprocessors or a lot of RAM to store an entire page's design. This helps keep the price low, ensuring their popularity, but also creates slow speed.

The alternative has been page printers — in most cases, but not always, laser printers. Most page printers have their own CPUs and RAM, some lower-end models use the processor and memory on the computer, resulting in a cheaper printer, but one that's dependent on the computer's resources. In either design, the entire page is laid out, then printed at once.

While most page printers have used laser technology, some have used an alternative — a row of light-emitting diodes (LEDs), instead. This technology has been around for years, used primarily in a series of black-and-white printers from Okidata. Not needing the rotating mirrors and focusing lens required by laser technology, these printers have been smaller, lighter and less expensive than comparable laser printers. At the same time, they have offered laser-quality print-outs.

Offering a "laser-quality" printer has sometimes been a bit of a challenge. Okidata Canada's general manager, Tom Campbell, talks about retail salespeople who haven't shown the company's products to customers shopping for a laser printer — they've known enough about the company's products to realize that they're not laser printers, but not enough to realize that they really do offer comparable quality.

While LED printers have quietly emerged as niche in the laser market for years, the advantages of the technology become clearer when stepping up to laser-quality color printers. While color ink-jets are the major player in the home/small office market, the technology is simply too slow for adoption in the



The Okidata OkiPAGE 8c printer can print at less than 8 ppm.



Abby Zissman

"As LED becomes more widely adopted, prices could drop to a level where those color printers could become standard office equipment."

larger business market. At the same time, color laser printers have remained large, slow and expensive.

Much of this is due to the complexities in moving those mirrors and lens back and forth, while moving the paper through the printer four times (once for each color). By contrast, recently introduced LED color printers again require fewer moving parts, and follow a straight-through paper path.

The result: less complexity and better paper-handling, even with heavy paper stock, transparencies, envelopes or labels. And that translates into lower paper and faster print speeds.

While color laser printers from major players such as Hewlett-Packard offer color print speeds of four pages per minute, Okidata's newly-released OkiPAGE 8c offers 600-dpi color prints at 8 ppm — possible because the paper only needs to pass through the printer once.

The OkiPAGE 8c features a base of 32MB RAM (expandable to 88MB), a 100MHz MIPS 4700 RISC CPU, and both Adobe PostScript Level 3 and PCL 5c page description languages, at a suggested price of less than \$3,000. A networked version includes 10/100Mbps Ethernet.

Okidata is no longer alone in pushing LED over laser. Lexmark recently introduced the technology into its line, with its high-end Optra Color 1200 promising 12-ppm color print-outs. The printer offers a straight-through "in-line" paper path, with four separate LED printheads. Its higher speed, however, comes at a cost of about US\$8,450.

Still, the simpler technology and higher performance of the LED models seems a compelling argument — namely that as other laser manufacturers are taking a second look at using LED for some of their future models. If so, as LED becomes more widely adopted, prices could drop to a level where those color printers could become standard office equipment. ■

Abby Zissman is a regular CCW columnist. Living in Vancouver, she is a computer journalist and teacher, and can be reached at accwoman@juno.com.

Power Systems

POWER SYSTEMS

Opportunities in Serious Performance!

by Sean Carruthers

There are always customers willing to pay for the best that money can buy. While this group may be relatively small, these are the users who really drive technological progress.

Many of these buyers are gamers or are involved in high-power content creation. When they go shopping for a new system, they want all the bells and whistles, and they want something that runs. They're looking for the latest PC CPU (currently 450MHz for the Pentium II, although that will soon change), despite the cost premium. They want the best and fastest optical drive available and an amazing video card with both 2D and 3D capabilities.

This month we challenged computer vendors to come up with a consumer-focused drama system that would appeal to the most power-hungry users. Despite leaving the possibilities wide open (we didn't set a price cap, and didn't specify particular components or processors), the systems sent for review were generally similar in nature and pricing. Most of the systems were based on the 450MHz Pentium II CPU and were well-tuned out for multimedia, with DVD players and good video and audio. Surprisingly, only two of the systems featured high-capacity removable storage options (one U-120 drive, and one CD-R). The good news is all of the systems had at least one full-sized bay free, allowing for the potential addition of a removable storage device.

Testing this month was done using SiSoft's Sysmark 98 benchmarking software. The computers were tested in 1,024 by 768 screen resolution, with a 12-bit color depth. Regular readers will notice that the benchmarking software this month is slightly different from our previous package, Sysmark 92. Sysmark 98 is designed to work better with Windows 98 than the earlier version of the benchmarking suite. In addition, instead of simply testing office productivity suites, Sysmark 98 tests a number of multimedia suites for content creation, to reflect the growing use of computers for multimedia viewing and production in a home setting. Because of this switch, our benchmarking now reports only three numbers: Office Productivity, Content Creation and Sysmark 98 (an overall score). With the release of the new package, the numbers have been recalibrated to reflect a more modest "base" platform (in this case, a Pentium II 233MHz machine with 64MB RAM, and a 4MB video card). A score of 100 on Sysmark 98 would reflect a machine of equal performance with their base model. Scores derived using the older Sysmark 92 should NOT be compared with these numbers, and vice versa.



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Compaq Presario 5600

Street Price: \$2,499

Although it features the distinctive curvy trans-pcise of the rest of the Presario line, the 5600 stretches out a little bit, with a taller case and more gaudy packed insides.

Software:

- The operating system is Windows 98.
- Software includes a Microsoft pack Discarts 98 Money 98 and BackOffice 98 Word's Photo Express. More freebie from Blithework Arts and Increasing Iron Rage.

Components:

- A Compaq two-button PS/2 mouse is standard with the 5600. The keyboard is Compaq's own, and is both multimedia- and Internet-oriented. There are specific buttons for CD-player applications and email (using other functions) in addition to the standard Windows keyboard.
- The machine has both a 56Kbps internal PCI modem (with the Revellsoft option) and an Ethernet jack. This makes the 5600 ready for either a standard Internet connection through an ISP, or a cable modem. Of course, the Ethernet jack allows the computer to connect to a local network, as well.
- *The 12GB hard drive offers plenty of room for multimedia applications and files.

Multimedia:

- The front of the machine features a flip-up panel hiding the "Digital Camera/Video Imaging Center." It features two ISDN ports and one IEEE 1394 FireWire port for digital video input. A Fireline port is on the back of the machine.
- In addition to the standard VESA monitor port, there is also a digital flat-panel port on this machine. Although many users may not need this port in the near future, it nevertheless makes the machine ready for the promised boom in flat-screen LCD monitors.

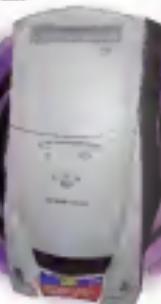
*At 4MHz, the video memory is a bit low for a high-performance system, but there is an expansion slot on the board for more SGRAM.

- *The 5600 comes with a DVD player and software. The DVD video playback is generally good, although there is quite a bit of pixelation evident, especially in patches of solid color.
- *With the JBL 3D 360 degree audio, sound quality is quite good.
- *The joystick port (normally included on the front of new Presario models but displaced here by the FireWire port) is located on the rear of the machine.

Expandability:

- *There are three slots for SGRAM.
- *There are two ISA slots and one PCI slot.
- *Two full-sized bays are available.
- *The machine features two USB and two FireWire ports for attaching peripherals and multimedia devices.

Although it turned in a slower score on the benchmarking than most of the other machines, the Compaq Presario 5600 may be just the computing PC you're after. First off, with U.S. modems and FireWire ports right on the front of the machine, it is easy to attach devices. Also, with both a modem and an Ethernet jack, the system comes ready-to-go for a few different methods of getting on the Net. With two USB and two FireWire ports available, the 5600 is ready for a variety of multimedia applications. Overall, it's an impressive machine worthy to take on a number of different high-performance areas.

**Eico VR**

Street Price: \$1,799

Eico's machines often cast an eye towards the user's budget, and the VR machine caused that month's test well within that arena.

Software:

- The operating system is Windows 98.

Components:

- A 56Kbps internal PCI modem from U.S. Robotics is installed.
- *The 6.4GB Seagate hard drive is smaller than many of the other drives in this roundup, but should still be large enough for most users.
- *At only 200MHz, the Pentium II chip included in this system is slower than the other machines tested this month. Still, performance was fairly good.
- *The system includes the Lissom wireless keyboard and the Microsoft IntelliMouse.

Multimedia:

- This was the only one of the machines this month that did not have a DVD drive included. Instead, there's a less speedy 40X CD-ROM from LiteOn.
- *The EDIMAX 330TX Fasteth card with HMA internal provides both 10D and 3D.

*SoundBlaster's PCI T10 card provides excellent sound reproduction. The system comes with the After Lösung AES45 multimedia speakers.

Expandability:

- *There are three slots for SGRAM.
- *There are two full-size bays available, and one 3.5-inch slot with an external opening.
- *The user can install two PCI and two ISA cards, or one PCI and three ISA cards (one mounting bracket is shared).
- *There are two USB ports.



Although it doesn't quite boast the specs of the other machines this month, the VR model we tested at this month's test is worth a look for users on a budget. It's a basic basic machine, with some room for a bit of expansion down the road (but enough goes in at a right angle to handle 3D gaming with ease) and a number of other multimedia applications.

Empact Azura

Street Price: \$3,200

With the only non-tower case submitted this month, Empact's Azura system offers high performance and expandability, while allowing the user to put the monitor on top of the computer when space is tight.

Software:

- The operating system is Windows 98.

Components:

- The 10.1GB Western Digital hard drive provides plenty of space for multimedia applications and files.
- A 56Kbps internal PCI modem from GVC is installed.
- A KeyScancode Windows keyboard comes with the system, as does a Microsoft Intellimouse.

Multimedia:

- Creative Labs' 2X DVD and DVB player software is included. The DVD video playback is generally good, but suffers from a problem which is distracting.

- The TRIM5 Graphics Blaster video card provides great video display.
- The SoundBlaster Live! Environmental audio card delivers excellent audio playback.
- Cambridge Soundworks PC Works' four-point multimedia speakers set up is included to take advantage of the SoundBlaster Live! 3D audio.
- S-Video, composite and S-VIDEO video-out ports are included.

Expandability:

- There are three slots for SDRAM.
- The user can install one PCI card and two ISA cards, or three ISA cards (one mounting bracket is shared).
- One full-size bay and one 3.5-inch slot are available.
- There are two USB ports.

The Azura is a nice system with good multimedia options. Although the DVD playback on the model we tested could stand to be a bit smoother, the machine offered a good selection of video and audio components overall. With most of the PCI slots already taken up, major internal component expansion will have to take place in the ISA side and through plug-in devices. This product is definitely worth a look.



Hewlett-Packard Pavilion k300

Street Price: \$2,000

The Pavilion k300 is interesting for a few reasons. The casing comes in a grey color instead of the more traditional off-white, and also features a dedicated digital camera port right on the front of the box.

Software:

- The operating system is Windows 98.
- The k300 comes with a Microsoft package (Works, Money 98, Encarta '98 Picture It!, Creative Writer II, Intuit's Quicken, Intel VideoPhone, McAfee Virus Scan, and Africa — The Serengeti) (on DVD).

Components:

- The 10.1GB Western Digital hard drive offers plenty of space for multimedia applications and files.
- The keyboard is multimedia and Internet enabled, with CD player controls and one-touch Internet application launch keys.
- A 56Kbps LT PCI Modem is included with the system.

Multimedia:

- The system includes a 2X Multimedia DVD player and DVB player software.

DVD video playback is smooth and high quality. Minor pixelation occasionally appears in solid patches but not enough to be distracting.

- The IBM ATI video on the motherboard provides a great display quality.
- Sound is high quality. The Pulse Audio multimedia speakers are very good.
- Video output S-video ports are included.
- There is a serial port on the front of the machine dedicated to digital camera communication.

Expandability:

- There are two USB ports.
- The user can install two PCI cards and one ISA card, or one PCI card and two ISA (one of the mounting brackets is shared).
- There is one full-size bay available for expansion.
- There are three slots for SDRAM.

While the design of the Pavilion k300's case is eye-catching, the rest of the system is worth looking at too. The DVD playback is smooth, as is the rest of the media and video on the system. The only minor quibble would be the serial port on the front of the machine, without some sort of cover. It takes away from an otherwise attractive-looking package. With the feature-enabled keyboard, extensive software bundle and great multimedia options, this makes it a great high-performance family machine.



Loctek Advanced Technology iVirt Pro

Street Price: \$2,700

One of the better bargains this year, the iVirt Pro machine offers a lot of machine for less money than some of the other contenders this month.

Software:

- The operating system is Windows 98.

Components:

- A U.S. Robotics 56Kbps modem is installed.
- The 5.1GB Seagate hard drive offers fast performance, and has a lot of room onboard for multimedia applications and files.
- The iVirt comes with a LeTVOn Internet keyboard and the Microsoft Intellimouse.

Multimedia:

- For AGP video, the Diamond Viper 500 offers great performance, such X-MB audio.
- SoundBlaster Live! features environmental audio, for a more immersive audio experience.

Creative Labs' 2X DVD player and DVD player software is included. DVD video playback is smooth, although there were some video glitches in menu-led which went long between scenes. Some pixelation is evident in some patches, but picture quality is generally good.

The speaker comes with a pair of Female M2 multimedia speakers.

Expandability:

- There are three slots for SDRAM.
- There are two full-size bays available for expansion, one tray-mounted 3.5 inch bay, and a 3.5 inch bracket hidden inside the machine for an additional bay drive.
- The user can install three PCI cards and one ISA card, or two of each (one of the mounting brackets is shared).
- There are two 168 MB ports.

The iVirt Pro machine shows how you can get more for less, with a lot of great components, but not necessarily all the newest and most expensive. The 5.1GB drive is a good example. The system offers less than the newest drives available (logically), but features enough space to satisfy most users. In the end, this configuration has allowed the iVirt Pro to perform really well in the benchmarking, offer decent multimedia performance, yet still come in at a reasonable price.



Silent Machine Viper M450

Street Price \$2,099



Overall

Silent Machine's Viper M450 is an impressive machine, from its massive case and expandability to the performance and included components and software.

Software:

- * The operating system is Windows 98
- * Adagio's Easy CD Creator software is included
- * Microsoft's Office 97 Professional is included. Includes Word, Excel, Outlook, Access and Power Point
- * The game Half-Life Day One and Redefine are included
- * The DVD title Finding Lucy is America comes with the system

Components:

- * The case for this system is quite large, offering a lot of room for expansion. It may be a bit imposing in smaller spaces though
- * The system features 1GB of 100MHz DualStar hard drive. With a drive this size, it's hard to imagine the user running out of hard disk space for quite a while
- * An internal 56Kbps U.S. Robotics modem is included
- * In addition to the DVD drive, there is also a Panasonic KX voice (30K baud) CD-R driver included in the system
- * A Logitech Mouse Man Plus-wheel mouse is included with the system, as well as a Keytronic Windows keyboard

Multimedia:

- * Toshiba's SX DVD and DVD player software come with the system. DVD video playback is smooth and high quality, although there is some minor pixelation at times in solid patches

Supercast Touch

Street Price \$2,099

Distributed in Canada by Supercast, the Touch system tested this issue offers a lot in the way of multimedia and storage.

Software:

- * The operating system is Windows 98
- * Lotus Smart Suite Millennium Edition is included
- * The system comes with McAfee's Anti-Virus software

Components:

- * The 15GB hard drive from Western Digital offers lots of space for multimedia applications (440 files, with room to grow)
- * The DX speed LS-120 drive offers high capacity removable storage, while remaining backward compatible with floppy disks
- * A 1.44MB PCI majicard from U.S. Robotics is included with this system
- * The Touch machine comes with a Windows keyboard and the Microsoft IntelliMouse

Multimedia:

- * The machine includes a front-loading 4X Pioneer DVD drive and DVD playback software. DVD video performance is good, although it is not perfectly necessarily
- * The Diamond Viper 250 AGP card with 16MB onboard offers great display quality

* The HMB Elite Eraser II AGP video card provides great 2D and 3D display, and comes with its own cooling fan

* The sound card is a Diamond Monster Sound MX-300 3D PCI card, and sound quality is excellent.

* Cambridge Soundworks' four port PC Works multimedia speakers are included to take advantage of the 3D sound (not).

Expandability:

- * There are three slots for SDRAM
- * The case can install three PCI card and one ISA card, or two of each type of the mounting brackets is provided
- * Three full-sized bays are available for components
- * There are six break-out spaces available for other 3.5-inch drives
- * There are two USB ports

Although a machine of this size certainly isn't for everyone, power users will love the Viper M450 from Silent Machine. It comes with a bunch of software, tons of room for expansion of components, but already includes enough great stuff made to suit almost everyone's needs. The inclusion of the CD burner is a nice touch, although users who are serious about content creation will make quick large-capacity removable backup copies of their work. And with the huge 16.0GB hard drive installed, there's lots of room for applications and files. For even the most space-hungry applications it's hard to imagine anyone finding this machine lacking.

* Diamond also provides the sound via the Monster Sound MX-300 Sound card if you prefer.

* Atac Lantis's AUS-451 multimedia speakers are high quality

Expandability:

- * There are three slots for SDRAM
- * Three full-sized bays are available for expansion
- * There is one 3.5-inch bay on the front of the machine, although space is tight.
- * The user can install two PCI cards and one ISA card, or one PCI and two ISA. One of the mounting brackets is already

Although it looks a bit plain at first sight, the Touch system packs a great multimedia punch, with great audio and video components and a lot of storage space with its 16.0GB removable drive. As a good alternative to a floppy drive, allowing faster access to the 16.0GB removable media, while remaining backward compatible with floppies. With extra space for additional components, this system is certainly effective.

Editors' Choice**Silent Machine Viper M450**

When we first reviewed this system, the Viper M450 is the most expensive machine overall in terms of components, including software, multimedia performance and expandability. Power users will love the storage options and the space to add components down the road.

Zack Baumstein is Lab Editor for Canadian Computer Wholesaler based in Toronto. He can be reached at zsb@acmwholesaler.ca

Overall

Power Systems



Cherry

Software

Groupware's definition is broadening to include business-to-business collaboration and knowledge management.

By Antonietta Pustizzi

Collaborative computing today is much more than displaying a mail server or a messaging system; it's about a platform that allows an organization to extend collaboration outside to customers and suppliers, and maximize its human capital.

Groupware has traditionally been considered to be software that lets employees collaborate over a company's LAN, WAN and corporate intranet. Now, groupware's definition is broadening to include business-to-business collaboration and knowledge management.

Today's business imperative is not just about infrastructure. It's about setting up shop on the Web, engaging and retaining customers and making sure employees who are in contact with clients have the most current information.

"The Web is opening up new ways of having collaborative computing applications work together. It is making systems cheaper, easier to access and the Web is increasing the functionality of applications," said Dave Marshall, director of Canadian software research with Toronto-based International Data Corp. (Canada) Ltd.

The next wave of collaboration computing, once we get past the Y2K crunch, will be about companies using existing resources more efficiently, Marshall said.

Some Key**Products****Product:**

- **Microsoft Exchange Server 5.5**
Server-side client access
<http://www.microsoft.com/Exchange/Products/5.5/Products.htm>

Product:

- **Federated Highlights**
Microsoft Exchange Server 5.5 Unified Edition comes:
 - Exchange 5.5 server
 - Internet 5.5 server
 - Microsoft Mail connector
 - Microsoft Exchange and Lotus Notes connectors
 - Internet news service
 - Microsoft Visual InterDev
 - Microsoft Visual Chat server
 - Support for Internet standards such as SMTP/POP3, IMAP4, LDAP v3 and NNTP
- **Exchange Server 5.5 Enterprise Edition** comes:
 - Unified storage
 - 8 MB memory
 - IBM OpenView/VM and NMSI connections

Platform:

- Microsoft Client Driver support in Exchange Server Enterprise Edition requires Windows NT 4.0 Enterprise Edition. Exchange Enterprise requires Outlook for Win32, WinCE and Macintosh platforms.

Price:

- The Standard Edition starts at \$8995, while the Enterprise Edition starts at \$10,000. ■ The Microsoft Exchange Server Standard Edition with client access licenses is \$2295. ■ The Microsoft Exchange Server Enterprise Edition with 8 MB client access licenses is \$22,995.

Product:

- **Novell Groupwise 6.0**
<http://www.novell.com/groupwise/6.0.html>

Product:

- **Fusion Highlights**
Groupwise 5.1 Lifetime:
 - Universal mailbox
 - File and replication
 - Document management
 - Personal calendaring
 - Extra instant message management
 - Group scheduling and task management
 - GroupWare messaging
 - Document sharing
 - Personal address book
 - NNTP and POP3 server support
 - IMAP support
 - File and IMAP 3.2 capable version of Groupwise WebAccess
 - Groupwise WebAdmin
 - Multiple language support
 - Groupwise agents and gateway
 - iCal support

Platform:

- Groupwise 5.1 runs on clients for Windows 95/98/Windows ME/Windows NT/Windows 2000/Windows CE/Windows CE 2.0 and Macintosh. The server runs on Windows 4.1 and Novell Net and Windows NT Server 4.0.

Price:

- Cost ranges from \$8995 CAD for a five-user license to a \$10,000 CAD for a 250-user license.

Product:

- **Reactor Pro Suite 2**
Domain 10 Client 2
<http://www.reactor.com>

Product:

- **Reactor Pro Suite 2**
Domain 10 Client 2
<http://www.reactor.com>
- **Feature: Lotus Development Canada**
- **Feature: File Manager**
Reactor Pro Client to domain replica:
 - Same pair interface
 - Redundant pairs or backup feature to mini, extended NNTP ports, and messagegate
 - Enhanced Calendar and Scheduling features
 - Secure support of Internet protocols IMAP, POP3 or NNTP/LDAP and security using SSL, S/KEY/MD5 and 802.11 wireless
- **Feature: DNS/ISDN/Network module**
• File and messaging and distribution
- Directory catalog
- Design replication with CORBA standard distributed objects, Java or JavaScript
- Domain administrator

Platform:

- Reactor Pro clients for Windows 9x, Windows NT 4.0, Macintosh PowerPC 740 and PowerPC 750. The server supports Windows NT 4.0, AIX, HP UX, Sun Solaris, OS/2, RISC/IRIX and SGI.

Price:

- Cost of desktop base (single-seat) for US\$8000. Price Designer for Client 10 is another US\$8000.

Shipping:

- Shipping is available for the rest of 1999.

C ollaboration



Moves Beyond E-Mail, Messaging

Collaborative Computing Defined

Five years ago, collaborative computing was defined as some type of e-mail that drove a simple scheduling application. Today, the definition starts at the notion of multi-function groupware and managing and attaching e-mail to all manner of collaborative computing tasks, such as corporate whiteboards, video-conferencing, chat, group scheduling, workflow and document management — across continents as far-flung as the Internet's reach.

Ron Cheung, president of Toronto-based EntroVision Inc., a e-commerce solution provider, says messaging is but one aspect of collaborative computing, and in fact, isn't always required in a collaborative solution. "Collaborative computing is any tool that facilitates collaboration and communication," he said, explaining that this includes a wide range of technologies, even tools which don't utilize the Web at all.

But at its most basic, collaborative computing is technology that is designed to help people work together. "It would be a mistake therefore for organizations to be trying to make long-term deployment decisions based on which e-mail system they feel inclined to deploy," said Nathaniel Palmer, senior analyst with The Delphi Group Inc. in Boston.

According to Palmer, as has happened in the desktop suites arena, there's not enough differentiation between the messaging aspects of the leading products — Lotus Development Corp.'s Notes/Domino Server, Microsoft Corp.'s Exchange Server or Novell Inc.'s GroupWise — to push objective consideration of the offerings one way or the other. He said as more companies embrace Web-based collaboration and business applications become Web-enabled, collaborative technologies are beginning to be embedded as standard features in all applications. "Anybody who has made a computing purchase in the last 10 months has the infrastructure for collaborative computing. You have groupware in every box today."

Groupware to the Next Level

Businesses are taking manual-based groupware to the next level by collaborating with customers and suppliers over networks, extranets and the Internet. The payoff: fewer mistakes in project design, data entry and manufacturing; faster agreement on issues, and faster time to market.

"Collaboration is a department or an organization is essential but collaboration across geographical boundaries is even more important today than before. Extending that information network outward is becoming more and more important to the competitive nature of companies," Cheung said.

One issue is the vast amount of information found on the Web, and the other is that companies want very sophisticated tools to access the information, he said. "The level and sophistication of the interface is much greater now. Organizations are advancing, that, in order to profile visitors, find out what interests them, and set up systems that will personalize questions and will show visitors certain information based on that query," Cheung said. "So there is much more data out

there and more and more businesses want that functionality."

According to Karen Hauser, sales and product marketing manager for Microsoft Exchange with Microsoft Canada Co., the marketplace competition has demanded businesses operate with less inventory and faster turnaround times. "In order to do that you need to get rid of paper-based processes, and you need to automate processes around this supply chain."

Hauser notes that many businesses are achieving this functionality through business-to-business collaboration. Businesses are extending the standard features of groupware — messaging, workflow and document management — to their customers and suppliers via their intranet and extranets.

But businesses aren't necessarily doing business-to-business collaboration as part of standard groupware packages. "Groupware has become fixed in people's minds as Lotus Notes, but it's really for broader collaboration and information sharing," says Adam Levin, a senior consultant at research firm CAP Ventures Inc. in Needham, Mass. Think of this broader collaboration in terms of "super-workgroups."

This super-workgroup concept is taking hold in large companies. Many organizations, for example, want to automate the procurement process over intranet and extranet, says Levin. Extending groupware capabilities to their customers and suppliers, these companies hope to improve purchasing practices for both direct resources — materials used in manufacturing — and indirect resources, which include goods and services supporting maintenance, repair and operations.

The Delphi Group's Palmer agrees that collaboration between vendors and customers is important, but he warns the tools that enable extended groupware capabilities aren't quite up to snuff. "Technologies for business-to-business communications are much more primitive than consumers would want them to be," he said.

The technologies may be primitive, but companies are forging ahead with their collaborative efforts using traditional groupware technology, says Ross Chevalier, director of technology with Novell Canada. He said with GroupWise 5.5, users can write a document and through the WebPublisher interface make it available on the Web. "That's the first step. Since the information store is fully secured by Novell Directory Services, organizations can take collaboration a step further. Businesses can give their customers a unique ID and password and they can access certain information."

Real-Time Collaboration

A big part of business-to-business collaboration involves real-time collaboration or instant communication. Lotus's Sametime technology will allow users to communicate instantly with co-workers and work simultaneously on documents or other files. The Sametime products can also be used for on-line meetings and application sharing. Lotus is also providing tools to support the development of third-party applications for Sametime.

"All of our Web-based usage has been about asynchronous communication. We will move in R5 to a concurrent model," said Petty.

Cormier, business development manager with Lotus Development Canada. He said the new release of Lotus Notes R5 and Domino R5 include features that allow users to chat on-line in real time, for example. Distance learning is the main use for the technology now but real time collaborative software can also be used for project management and remote support, Cormier noted.

Microsoft also has plans to add support for NetMeeting and NetShow conferencing software to Outlook, and Hunter. The messaging client will also gain features to monitor whether colleagues are online and to exchange peer-to-peer instant messages. In addition, Outlook will include an Application Design Wizard (organizer) tool to help develop customized collaborative applications. Despite the plans, Hunter says real-time technologies are still in the early adoption stage. "At the moment Exchange Server, I believe, uses NetShow and while users think it's cool, the technology is still in the pilot or proof-of-concept stage and has a long way to go before wide adoption," he said.

Novell's Chassan said there are no present plans to incorporate real-time voice and video into GroupWise because the corporate demand for real-time collaboration isn't there.

Bandwidth limitations also inhibit the wide adoption of real-time collaboration technologies, according to vendors. Other reasons relate more to corporate culture. Many people are not used to audio-conferencing or video-conferencing, or they object to some types of data-conferencing.

Marketing Legibility

Local Business and City and State Health Departments are continuously evaluating all ongoing services for the protection of the public's health and well-being systems.

According to International Data Corp., although Lotus' Dennis Nienhuis quit plans to lead the groupware market assault, Microsoft picked up 8.7 million new users worldwide for its Exchange software, topping new users for Lotus in the first half of 1995.

Lots joined 8.3 million new users during the same time period, according to Franklin, Mass.-based ISP.

Latin American firms continue to dominate the market, with 21.1 million users worldwide as of June 2008, trailed by Facebook's 18 million. Next is 3G mobile with 13.4 million, followed by China Mobile's 10.9 million.

Groupware is also called *co-present collaborative environments*, or C2E, software. Examples range from online databases on corporate networks and intranets to particularly useful for teleconference, as projects and the like.

The figures in parentheses do not include licences that have been distributed but left on display or those sold to ISPs and other providers to resellers.

ents, at least in its more rudimentary forms, resembles chat. "Chat has pretty bad reputation as being a time waster," says Mark Lavin, research director with Framingham, Mass.-based IDC. "But I think it has the potential of being a productivity enhancer because it gets people to work together. People don't have experiences with chat systems, but that might change."

Woundcare Management Meets the Web

The movement towards synchronous communication will increase the spread of knowledge management through the enterprise, according to Lema's Contexta. "Knowledge management is basically the capture of the knowledge of the enterprise and the sharing of that information. This is something Lema has been doing for some time," he said.

Knowledge management is an emerging discipline and practice. According to IDC, it offers companies competitive advantages by capitalizing on the intellectual capital located throughout the organization, whether in documentation, entrenched in business processes, or embodied in people's mental models, skills, and bodies.

The groupware vendor's adopt broader or narrower definitions, depending on their product line, said Lewis. "Regardless, it is certain that new classes of collaborative Internet applications will assist to support knowledge creation, dissemination and transfer activities."

According to Novell's Chevalier, GroupWise 5.5 currently offers the ability to store and gather information from a corporate or institutional source through the integration of document management. "Once you establish these knowledge stores, you then need to get to the information. That is the biggest challenge going forward for companies once they get past 2000 — managing their data. And managing that information is the essence of knowledge management, which is highly transactional and challenging for businesses on the whole."

Microsoft meanwhile, is working to bolster Windows NT, the SQL Server database, and Exchange Server as foundations for future knowledge management solutions, said Hunter.

But some analysts say knowledge management and collaborative computing aren't the same thing. "Knowledge management is not the next evolution in collaborative computing but it may be the next evolution in buzzwords. You're starting to see that from Lotus and others that avoided the groupware term when they saw it losing its sheen and then began using collaborative computing. Those same vendors are now starting to talk about knowledge management," Peltier said. "While it is an application that may involve collaboration and groupware, it is still a separate application." ¹⁴

Antonietta Pollicino is a Toronto-based journalist who specializes in legal technology reporting.

present plans to incorporate real-time voice and video into GroupWise because the corporate demand for real-time collaboration just isn't there.

Bandwidth limitations also inhibit the wide adoption of real-time collaboration technologies, according to vendors. Other reasons relate more to corporate culture. Many people are not used to audio-conferencing or video-conferencing, or they object to some types of data-conferencing.

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IMPAQ
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Software

If you hear someone sneaking up behind you, it is probably and what he is no surprise.

Which Applications Should You Sell in 1999?

by John Newcombe

If you hear someone sneaking up behind you, it's probably the taxman. What he wants is no surprise.

Each year at this time, Canadians begin the annual task of collecting their tax returns; as they face the daunting spectre of preparing their annual return. Many people will pass the job on to their accountant or a tax preparation service. But there is another choice — to use tax preparation software. It makes the process less time-consuming and more accurate, and removes some of the mystery from the whole process of preparing your return. And don't I say, it may even be more fun!

Although this article deals with several leading packages, it's only a selection; there are literally hundreds of packages available. And note: the firms designing tax software work within very narrow time windows, between updating the software to reflect tax changes, getting the package approved by Revenue Canada and sending it out the door before people get their T-4 slips. Therefore, the following discussion is based on the best-seller versions of the software — there may be slight differences in the final version.

In general, all of the software reviewed delivers on the promise of simplifying the process of preparing a tax return. All of the packages offer good value, provide comprehensive tax information and planning tools far along the same amount as tax preparation charge for one basic return. (This software could be used by multiple family members.)

The packages also provide built-in help and tax tips and have a diagnostic routine to verify there are no major errors or missing information. Given that most of the packages deliver the same information, the choice of a package is largely dependent on personal taste. For this reason, this review will not rate the packages, but will highlight key features and benefits.

Many people choose tax preparation software because they are not comfortable with complex tax rules and want some help. All of the packages offer a "guided tour" approach, to walk the user through the steps of preparing their return. Several of the packages use multimedia content to assist the user, others just provide a path to follow through the forms and offer context-sensitive help. The multimedia approach does add some pace to the process, however, it requires more hard drive space and more computing power. Some provide advice from tax experts. But for users who are comfortable with the tax rules and prefer to attack their return in their own way, the packages also allow for that flexibility.

The leading packages now offer the ability to download software directly, while still providing boxed copies. The Internet also allows for many big files. This method of distribution also encourages the firms to keep the size of the executable file to a minimum, so users won't be daunted by an extended download.

In recent years, tax software has included increased planning capabilities. That means products are useful throughout the year. The packages typically provide a Registered Retirement Savings Plan (RRSP) planner to calculate the tax benefits of various contribution levels and estimate retirement income. Some of the programs can also optimize RRSP contributions between a couple, by showing the effect of income splitting using a spousal contribution. For the truly

survive-hungry user, CanTax will predict total lifetime income and the amount of tax to be paid. (This can get somewhat depressing.)

No discussion of tax software would be complete without at least a mention of the e-file program run by Revenue Canada. The leading packages (QuickTax, CanTax and HomeTax) all can generate the files required to electronically file your tax return. Unfortunately, Revenue Canada still requires that you use a middle party for the actual transmission. However, the software firms do provide facilities for the e-filing service themselves (either under contract or directly). In addition, all of the packages offer professional versions for tax preparers, which allow personal users to have a local provider file their returns. The cost of the service varies from \$4.95 up to \$50.

If filing a return means the information is directly entered into the Revenue Canada computers and therefore reduces the time it takes to a refund, if a refund is sizable, a reduction of between one to three weeks in processing a refund can offset the purchase cost. However, if the user either owes money or has a relatively small refund, e-filing is less appealing. Last tax season, Revenue Canada ran a pilot project in the Maritimes where taxpayers could file their returns using a touch-tone phone, providing the speed of e-filing without the cost of the service bureau. The trial was apparently successful, so we might expect that service to be rolled-out nationwide.

Some packages, alphabetically:

CanTax T-1 '98

canTax This is the granddaddy of tax software packages and in past years that often showed! But last year the package was

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newspired and is now far more visually appealing — although the developers do persist in using Courier 8 to display some information, which is harder to read. I was impressed with the business income section where the information was collected using a simple template, rather than the more complex tax schedule. CanTax also includes a very extensive library of help files and advice (including Revenue Canada documents). One important note, due to tax reform in Quebec, CanTax cannot produce a Quebec income tax return.

CanTax forgoes multimedia content, relying on an extensive text library of help and tax tips (from tax author Evelyn Jacko). This package is sold through resellers and directly, either in box form or electronically (a 1.3MB executable).

Cost: \$38.95

<http://www.cantax.com>

HomeTax

HomeTax comes in both 16- and 32-bit versions. The 32-bit version has enhanced graphics and is a full multimedia product, including materials on how to use the program and video tax tips. This year, look for greatly improved planning tools, in particular the "Your RRSPs in Action" module to optimize RRSP contributions and retirement income, and a planning tool for Quebec residents to determine whether they should be using the General or Simplified rates. The package has beefed up the tax tip section, including tips from commentator Brian Costello and context-sensitive tax information.

Cost: \$29.95

<http://www.mistering.com/~hometax/>

QuickTax

This package comes in a Deluxe and a Basic version. The Deluxe version adds multimedia features and some additional planning features. QuickTax is from Intuit, the maker of Quicken, so it is able to import tax data directly from Quicken. QuickTax still provides one of the most visually appealing user interfaces, with easy-to-read screens and a simple scroll-bar.

There is also a nice graphic summary displayed, which shows the effect of each item the user enters on the form. It adds a sort of race-like nature to entering your return — how low will it go? Intuit also offers good on-line tax advice, in the software, and also at the Web site.

Cost: Basic — \$34.95 Deluxe — \$39.95

<http://www.intuit.com/quicktax>

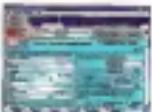
TaxWiz

This package is only available by electronic delivery, with a download of 6.9MB. It's very easy to use and has a good layout on the screen.

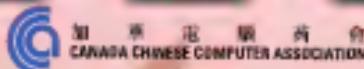
The "guided tour" was very well implemented. Although it follows the general layout of the tax return, this package seemed to follow a more logical pattern than some of the others. I also liked the single menu bar and menus — they provided easy access to any part of the program.

Cost: \$26

<http://www.taxwiz.com>



John Newcombe is an accountant and information technology consultant with a background in IT for small- and home-based business. He can be reached by e-mail at jpn@newcombe.com.



第七屆年會

Seventh Annual Spring Dinner

The CCCA Seventh Annual Spring Dinner brings together some of the computer industry's most influential computer manufacturers, distributors, resellers and dealers.

It's an opportunity to network with fellow professionals and view the latest product innovations from our sponsors, while enjoying celebrations of the upcoming Year of the Rabbit. The evening includes a silent auction, Lion Dance, followed by a traditional Chinese banquet.

Friday, March 5, 1999 - 5 to 11 p.m.

Century Palace Chinese Restaurant, 398 Ferrier St., Markham

Members: \$53.50 per person Non-Members: \$64.20 per person

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WOULD YOU LIKE TO RECEIVE FREE TICKETS?

As a manufacturer, distributor, reseller or dealer of computer and related products, your company is eligible to receive up to **two free tickets** to the CCCA Seventh Annual Spring Dinner — thanks to the generous support of our sponsor. CCCA reserves absolute discretion on the availability of complimentary tickets. You will be notified of your free tickets via fax by February 26, 1999.

For more information, please call CCCA 905-513-0675.

To apply, you need to be **referred by a CCCA member**. Please complete the form and fax together with a copy of your business card, by February 19, 1999 to 905-513-6275.



Name of Applicant #1

Job Title

Name of Applicant #2

Job Title

Name of Company

Type of business:

Manufacturer Distributor Reseller Dealer Other (please specify)

Entered by - CCCA Member

Name of Company

Name of Contact

DNV#

NEW PRODUCTS

Software to Grow On

Strategic Connections Inc., of Richmond Hill, Ont., says its Noyakas Workstation Basic and Napoleon Workstation BIS applications will help small businesses grow.

The products include tools to enhance business management. According to the company, Napoleon Workstation BIS, with 100 built-in management reports and grading methodology, lets an entrepreneur see where the business is profitable, from a product, customer, category or sales rep point of view. The software works behind the scenes to draw data from the business's accounting and inventory management systems and turn that data into information. Components for Aspac, Great Plains, Dynamics, Business Vision and Yardi Account Mate are available.

Workstation Basic includes functions within Workstation BIS plus defining and sales management. The Marketing module lets the entrepreneur create, support and manage marketing initiatives. The software also provides formal management of sales appointments. Through its Outlook Connector, it can pass sales opportunities through the Internet to any sales rep's desktop or mobile computer.

The Napoleon Workstation BIS and the Workstation Basic are priced at \$1,000 and \$5,995 respectively. See <http://www.stratcon.com>.



ATI Eyes the Mac

ATI has announced three new graphics boards for the Apple Macintosh market, using the Rage 128 graphics technology chip. ATI says these products "demonstrate ATI's ongoing commitment to the Mac market."

The new products include the Radeon VR 128, multimedia-oriented VR 128 with stereo video (priced at \$399, including the TV tuner), ATI's Rage G400 aimed at the Mac power market, priced at \$399, and the Xcross 128, priced at \$499 — a 128-MHz graphics card designed to deliver professional 2D and 3D performance "at a mainstream price." See <http://www.atitech.com>.



Intel Ships New Xeon Processor

Intel Corp. Inc. announced 450MHz add-ons to its Pentium II Xeon processor family.

The new processors include 512KB, 1MB and 2MB of Level-2 cache and are intended to support servers and workstations using four or more processors.

Intel says these processors, equipped

with 2MB of Level-2 cache, have demonstrated more than 10 percent greater performance than systems using a 400MHz Pentium II Xeon processor with 1MB of Level-2 cache.

In 1,000-unit quantities, the 450MHz Pentium II Xeon processor with 32KB of Level-2 cache costs \$324, each 1MB of Level-2 cache, it costs \$1,092, and each 2MB of Level-2 cache, costs \$3,092. See <http://www.intel.com>.

Reader Poll

Our Question to You:

Bill C-32, instituted on Jan. 1, may dramatically increase the costs of CD-recordable media and require a fee of up to 50 cents per 15 minutes of digital recording time on blank CDs. See <http://www.vita.ca/canadiannewsguide/cd-civil.html>.

With the proposed levy potentially adding \$2.50 to the price of blank CD media, how would this impact the CD-R market?

- This levy would have little effect on sales.
- This levy would slow sales, but the media would persevere.
- The market would abandon the media and move to CD-RW.
- The market would abandon CD media altogether and move to other removable storage options.

Last Issue, We Asked:

What technology has the best chance of making color printers mainstream?

You Said:

- 88% Color ink-jets will be the most significant opportunity for growth in business printing.
- 52% Color lasers will be the most significant opportunity for growth in business printing.
- 31% Other technologies, such as LED (with potential for higher speed), will bring opportunities for growth in business color printing.
- 10% The business market for color won't grow substantially in 1999.

Win a FREE printer!!

Vote in our Reader Poll! A randomly drawn winner will get an Okidata 2500 color ink-jet printer from Océval!



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Congratulations to the winner of "Mr. McVicar's '98 Executive computer system raffle" who is Ontario John Thompson, v.t.-B. Computer Co. in Kitchener, ON.

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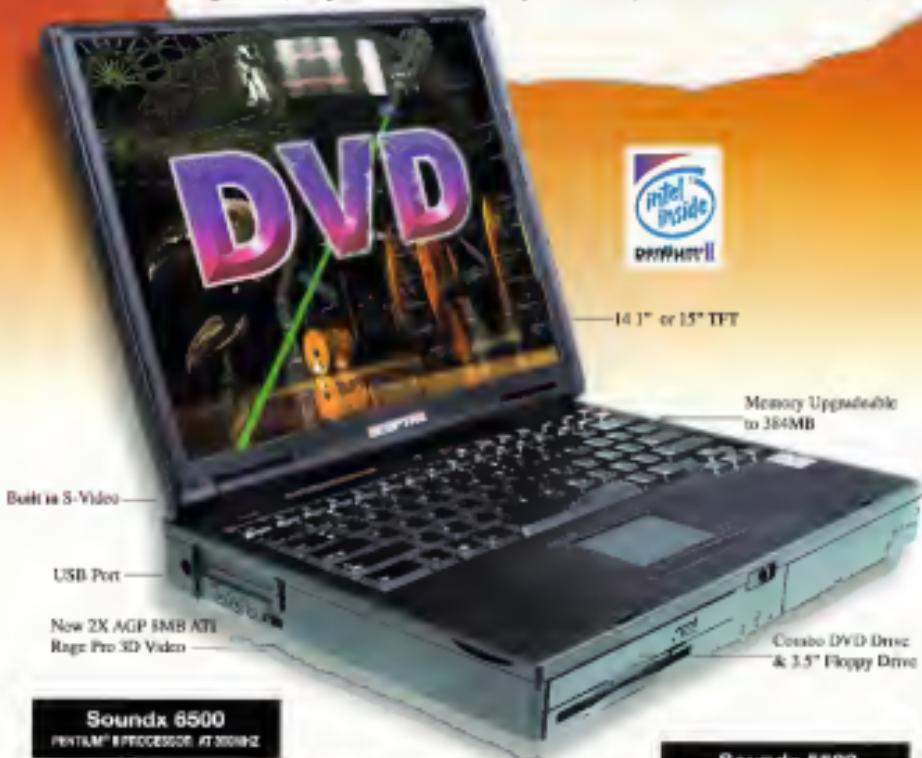
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